

TRANSACTIONS
OF THE
ENTOMOLOGICAL SOCIETY
OF
LONDON.

I. *On the Habits of Megachile centuncularis.* By GEORGE NEWPORT, F.R.C.S. &c. President of the Entomological Society.

[Read 5 September, 1842.]

SO much attention has been paid by naturalists to the habits and economy of the *Hymenoptera*, that it has now become difficult for any one to detail the results of his observations on the well known families of this order, without subjecting himself to the chance of being regarded by the superficial hypercritic as only re-stating what does not require further investigation. But so varied are the circumstances that influence the habits of every species, that almost every one is enabled to add something, even to the best established facts.

Every carefully pursued investigation, therefore, is of value, although its principal facts may be well known, since it is only by the most attentive and repeated observations that we can hope to become fully acquainted with the habits of any one species, and be enabled to arrive at some conclusion in regard to the cause of the variations which are constantly taking place in the proceedings of these interesting "little miniatures of creation."

With this feeling I am induced to lay before the Society some

observations made by myself on a curious deviation from its usual habits by the common leaf-cutter-bee—

Mcgachile centuncularis.

On the morning of the 19th June, 1829, I observed one of these busy little creatures conveying alternately portions of rose-leaves, and of some other material, which, at first, I could not identify, to a hole in a brick wall in our garden, where she was constructing her nest. The whitened and singular appearance of this new material induced me to watch her proceedings, to ascertain its nature. The quantity conveyed by her was fully equal to that of the rose-leaves, and it seemed to be regarded by her with quite as much attention. On examining her proceedings very closely, which I had an opportunity of doing, as the nest was advanced towards the entrance of the hole, I was much amused at the precision with which she seemed to adjust her materials. On one occasion, after being for some time engaged in the hole, she came to the entrance for a few seconds, and seemed as if surveying the interior, and then again proceeded to the bottom of the cell. After she had remained there for some time, she suddenly brought out a piece of the white material and dropped it on the outside of the nest as if unfitted for her purpose, and then flew away, and in a few moments afterwards returned with a portion of rose-leaf. On examining the material rejected by her, I was surprised to find that it was a little piece of *cotton cloth, very finely carded, or picked to pieces*, and which I at first supposed had been substituted for some other material usually employed by her. In the early part of the following day she had made good progress with her labour; I saw her at work very soon after four o'clock in the morning, when she was bringing in rose-leaves, and *also cotton*, as on the previous day, with great assiduity; and she continued to do so until about ten o'clock, after which I missed her for nearly two hours. At that time I suspect she was engaged in the business of oviposition. The interior of the nest seemed then to have been nearly completed, and the hole was partially lined with cotton at its entrance. Soon after twelve o'clock I again saw her; she was then heavily laden with pollen. At one o'clock her activity was increased, and *rose-leaves alone* were then conveyed to the hole with great rapidity, and continued to be so until the nest was completed. At this stage of her labours I carefully noted the length of time that elapsed from the moment of her leaving the nest to her return to it laden with rose-leaf, and was astonished to find that it *never exceeded forty-five seconds*,

and very frequently not more than *thirty seconds*; although, as I afterwards discovered the rose-bush from which, from the direction of her flight, she seemed to have cut the leaves, she must have flown at least a quarter of a furlong and back again, besides having to cut her material of its proper shape. Now if we allow only one-third of the whole time to have been employed in cutting the leaf, which certainly is less than that usually occupied in this labour, her velocity of flight could never have been less than at the rate of a mile in six or seven minutes, and often in less than three minutes and fifty seconds.

At three o'clock in the afternoon her labour was completed. She had then closed the entrance to the nest, and had also filled up part of the hole with rose-leaves. After taking a survey of the spot she flew away, but in a few seconds returned, as if to press down the leaves a little closer, and then deliberately left the place, and proceeded in search of another hole in the same wall for a repetition of her labours. I then secured this interesting little creature as an acceptable specimen for my cabinet.

On the 17th of July, twenty-seven days from the completion of the nest, I removed the bricks from the wall for the purpose of examining it. On separating two bricks, between which the nest was built, I found that the hole extended in a horizontal direction about five inches, and that it contained four centuncules, each of which was occupied by a full grown larva, that was spinning a cocoon of brown silk, preparatory to changing to a nymph. But what now excited my admiration was the instinct exhibited by the parent in the construction of her nest. The base of the hole being full of cavities, and altogether uneven, the little architect had remedied these defects by *filling them with the cotton* she had been so actively conveying to the spot, until the interior of the hole presented an even surface, around which she then placed the rose-leaves, the materials usually employed by her. I could not help feeling that this was one of those admirable variations of instinct which ought to make us hesitate when we are told that insects, and the higher orders of invertebrated animals, *are not* endowed with faculties which approach somewhat closely to that of reason.
